WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
MEMORANDUM

TO: Solvay Minerals Green River Soda Ash Plant File

THROUGH: Dan Olson, Administrator
Bob Gill, Compliance Program Manager 56-037-00005
Tony Hoyt, District Engineer (TH)

FROM: Carl Disel, Air Quality Engineer CLD

SUBJECT: Semi-Annual Inspection

DATE: January 9, 2002

I performed the FY'2002 Semi-Annual Inspection of Solvay Minerals on Tuesday 1/8/02. This was an announced inspection. After signing in at the reception desk, I was met by Dolly Potter, an Environmental Engineer for Solvay. Dolly and I proceeded to the engineering conference room for a pre-inspection discussion. Tim Brown, an environmental Technician III for Solvay, joined us for the discussion. I began the discussion by saying that for this semi-annual inspection I wanted to go over Solvay's permit application to construct a facility to produce an additional 55,000 tons per year (TPY) of Trona products (AP-Y92); go over the Operating Permit 30-126 reporting conditions; and to answer any questions Solvay might have.

AP-Y92:

Solvay submitted an application to modify operations at the plant with the addition of a new facility to produce 55,000 TPY of trona products on September 20, 2001. The facility will be housed in the existing sulfite building and will include three new air emission sources; the Trona Products Expansion (TPX) Bin #1 Baghouse AQD #96; the TPX Bin #2 Baghouse AQD #97; and the TPX Area Baghouse AQD #98. The emissions associated with the modification will total 0.66 pounds per hour (pph), or 2.89 TPY of particulate (PM-10). The proposed baghouse for emission source AQD #96 is a Mikropul Model 49S-8-20-TR. The Mikropul Model 49S-8-20-TR Baghouse has a reported 2,400 actual cubic feet per minute (ACFM) gas discharge, has 49 bags with a bag filter area of 461 square feet (ft2), and an air/cloth ratio of 5:1. The proposed baghouse for emission source AQD #97 is a Mikropul Model 25S-8-20-TR. The Mikropul Model 25S-8-20-TR Baghouse has a reported 1,500 ACFM gas discharge, has 25 bags with a bag filter area of 235 ft2, and an air/cloth ratio of 6:1. The proposed baghouse for emission source AQD #98 is a Mikropul Model 100S-8-20-TR. The Mikropul Model 100S-8-20-TR Baghouse has a reported 5,950 ACFM gas discharge, has 100 bags with a bag filter area of 942 ft2, and an air/cloth ratio of 6:1. The baghouses have a reported efficiency of 99.9% and have a vendor guarantee of 0.01 grains per dry standard cubic feet (gr/dscf) for PM-10. These baghouses are subject to Subpart OOO which limits the baghouses to 0.05 grams per dry standard cubic meter (0.02 gr/dscf)

particulate and limits opacity to 7%. These baghouses represent the Best Available Control Technology for these particulate emission sources.

The Division confirmed receipt of Solvay's application to modify operations on October 8, 2001 and the application was found to be complete by letter of October 23, 2001. Solvay's application stated that "Construction of the facility is scheduled to begin January 4, 2002, with production start-up scheduled for April 2002. Since the timing of this project is critical, we would appreciate an expeditious processing of this application." Dolly said to date Solvay has not received a permit or waiver allowing this modification but hoped to obtain one before February the new scheduled date for construction to begin. I spoke to Chad Schlichtemeier on January 10, 2002 concerning the modification and Chad said the Division intended issuing a waiver for the modification and he thought the waiver would be issued this month.

Operating Permit 30-126 Reporting Conditions:

Solvay submitted a report dated December 11, 2001 for the Method 9 opacity observations required by Operating Permit 30-126 condition F13. Condition F13 requires a six-minute Method 9 test be performed while simultaneously measuring each scrubber's pressure drop and recirculation rate. The tests are to be performed on the scrubbers for the DR-1 and 2 Steam Tube Dryers AQD #15, the DR-4 Fluid Bed Dryer AQD #28, the Sulfite Dryer AQD #35, the Carbon/Perlite Scrubber AQD #66, and the Metabisulfite Dryer AQD #73. The report contained the required observations for all the above sources except the DR-1 and 2 Steam Tube Dryers AQD #15 and the DR-4 Fluid Bed Dryer AQD #28 The DR-1 and 2 Steam Tube Dryers AQD #15 and the DR-4 Fluid Bed Dryer AQD #28 have not operated since the issuance of Operating Permit 30-126 on July 24, 2001. Solvay will have to perform the Method 9 opacity observations while simultaneously measuring each scrubber's pressure drop and recalculation rate on the DR-1 and 2 Steam Tube Dryers AQD #15 and the DR-4 Fluid Bed Dryer AQD #28 if operation of the dryers is resumed.

Solvay submitted two reports one dated December 19, 2001 and one dated January 4, 2002 for the performance tests required by Operating Permit 30-126 condition F8. Condition F8 requires performance tests for opacity and particulate be conducted on the "D" Train Primary Ore Screen Baghouse AQD #76, the Ore Transfer Point Baghouse AQD #79, the "D" Train Area Baghouse AQD #81, the Product Silo Baghouse AQD #83, the Sulfite Bag-Dump Baghouses 1 and 2 AQD #90 & #91, the Trona Products Bin Bag Filter AQD #92, the Trona Products Rail Load out Baghouse AQD #93, the Sulfite Load out Baghouse AQD #94, and the Trona Products Load out Bin Vent AQD #95. By letters of August 17, 2001 and December 19, 2001, the Division allowed EPA Reference Method 9 testing to demonstrate compliance with the opacity and particulate performance testing requirements for the small baghouses and bin vents AQD #79 (0.84 pph), AQD #92 (0.30 pph), AQD #93 (0.17 pph), AQD #94 (0.30 pph), and AQD #95 (0.10 pph). The Method 9 tests were required to follow the test methods and procedures outlined in 40 CFR 60 Subpart OOO. The Product Silo Top Baghouse AQD

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#83 has yet to be constructed. The "D" Train Primary Ore Screening Baghouse AQD #76 was performance tested on December 12-13, 2001 utilizing EPA Reference Methods 1-5/202.

To satisfy Operating Permit 30-126 condition F8, Solvay must still perform performance testing on the "D" Train Dryer Area Baghouse AQD #81 (0.50 pph) and the Blending Bag Dump #1 & #2 Baghouses AQD #90 and #91 (0.05 pph each). I talked to Dolly Potter and Tim Brown concerning this issue and they said that Solvay intended requesting EPA Reference Method 9 testing to satisfy the condition F8 performance testing requirements for these remaining small baghouses and bin vents.

I next pointed out that with an Operating Permit issue date of July 24, 2001, Solvay's first operating permit semi-annual reports will be due by January 31, 2002. I also pointed out that Solvay's annual compliance certification will be due by January 31, 2002 and that Operating Permit 30-126 condition (C1)(c)(iii) requires the compliance certification to include whether compliance was continuous or intermittent. We discussed what continuous or intermittent compliance meant when certifying compliance with continuous emissions monitoring requirements and it was decided that compliance was continuous except during times of malfunction or upset and those times would be identified as intermittent compliance.

Solvay Questions:

Dolly said that Solvay was in the process of compiling opacity data to satisfy Permit CT-1347 condition 12. CT-1347 condition 12 reads as follows:

"The allowable opacity limits for AQD #80 calciner and AQD #82 dryer will be set based on correlation of the units COM measured opacity during their initial performance testing and first 6 months of operating opacity data. Solvay shall submit a summary of opacity readings during the first 6 months of operation summarizing the monitoring opacity readings in increments of 5 percent up to 20 percent. Based on the initial performance testing and first 6 months of operating opacity data, the Division will review and establish an allowable opacity limitation, not to exceed 20 percent nor be less than 7 percent. The allowable opacity limitation will be incorporated into the Section 30 operating permit for the expansion project. Until such time a reduced opacity limitation is established, the allowable opacity limit shall be set at 20 percent.

Dolly's question was, should COM opacity readings during periods of upset and malfunction be included in the data. I said that it would seem reasonable that all opacity readings should be included. I said that OCI had recently complied with a very similar condition for their new calciner and new dryer and that I would check and see how they compiled their data. Dolly said that she and Tim would be in Lander the following week for a meeting with Land Quality and that we could go over this issue then.

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After completing our discussion Tim Brown and I inspected the facility. We made several observations of the plant from various locations and only observed massive steam plumes resulting from individual source plumes merging (see photo #1). I also observed and took photos of the new "D" Train Primary Ore Screening Baghouse AQD #76 stack (see photo #2), the new Ore Transfer Point Baghouse stack AQD #79 (see photo #3), and the new head frame (see photo #4), The new baghouses AQD #76 and AQD #79 were performance tested in December of 2001. After completing my semi-annual inspection, while driving east on I-80, I observed a white smoke plume (with the sun behind the facility) forming at the end of the massive steam plume produced by Solvay's various sources. The white smoke plume could be seen for miles downwind of the facility.

Finally, I did not go over the FY'2001 inspection concern. I felt that Solvay did a good job of responding to my concern by letter of October 2, 2001. The FY'2001 Inspection concern and Solvay's response to the concern follow:

FY'2001 Inspection Concern:

1. As noted in the General Inspection Observations and Commentary section of the FY'2001 Inspection Report, the new "D" Ore Calciner, and the new DR-6 Product Dryer stacks were observed to be emitting blue-white smoke with opacities of approximately 10% and 5% respectively. Past observations of the "A" & "B" Calciner stack and the "C" Calciner stack showed very little blue-white smoke. Solvay is required to explain the new calciner and the new dryer opacities.

Solvay's Response to the FY'2001 Inspection Concern (letter of October 2, 2001):

As we discussed, "blue-white" smoke is periodically visible from all three calciner stacks (CA-1&2 common stack, source AQD #17; CA-3, source AQD #48; and CA-4, source AQD #80). This smoke is formed after leaving the stack. Opacity in the stack, as recorded by certified, calibrated opacity monitors, can be at a lower percentage than the smoke that intermittently forms after leaving the stack. All three calciner stacks have historically been in compliance with opacity limits more than 95 percent of each quarterly reporting period.

The exhaust of all four calciners is controlled by electrostatic precipitators (ESPs). These ESPs are the Best Available Control Technology (BACT) for controlling particulate emissions from a source of this type. Control efficiencies of the ESPs are rated at 99.9%. These sources have some of the lowest particulate emission rates in the industry. However, ESPs do not control smoke that is formed after leaving the stack.

Solvay is not certain that blue-white smoke is more prevalent after the new calciner stack (CA-4) compared to the older calciners. The blue-white smoke is intermittent and occurs in varying degrees. So, it may have been coincidence that blue-white smoke was observed after leaving

the CA-4 stack and not the other calciner stacks on the day of the inspection. In fact, CA-3 was not operating on the inspection day. Also, perhaps because CA-4 has a higher production capacity (275 TPH) compared to the older calciners (200 TPH each) it may appear to occasionally have more blue-white smoke than the others.

Concerning the new DR-6 Product Dryer stack (AQD #82), Solvay is not aware of blue-white smoke forming after leaving that stack, or any of the other product dryer stacks. Depending on meteorological conditions, steam can condense after leaving the stack, since moisture in the exhaust is generally 30 to 40 percent. We believe what was observed near the dryer stack on the day of the inspection to be either steam or normal low levels of opacity. Steam plumes can also periodically be seen from the calciner stacks, since the exhaust contains approximately 30 percent moisture due to the normal products of combustion and the molecular moisture in the trona ore being driven off.

WYOMI[illegible] DEPARTMENT OF ENVIRONMENT [illegible] QUALITY
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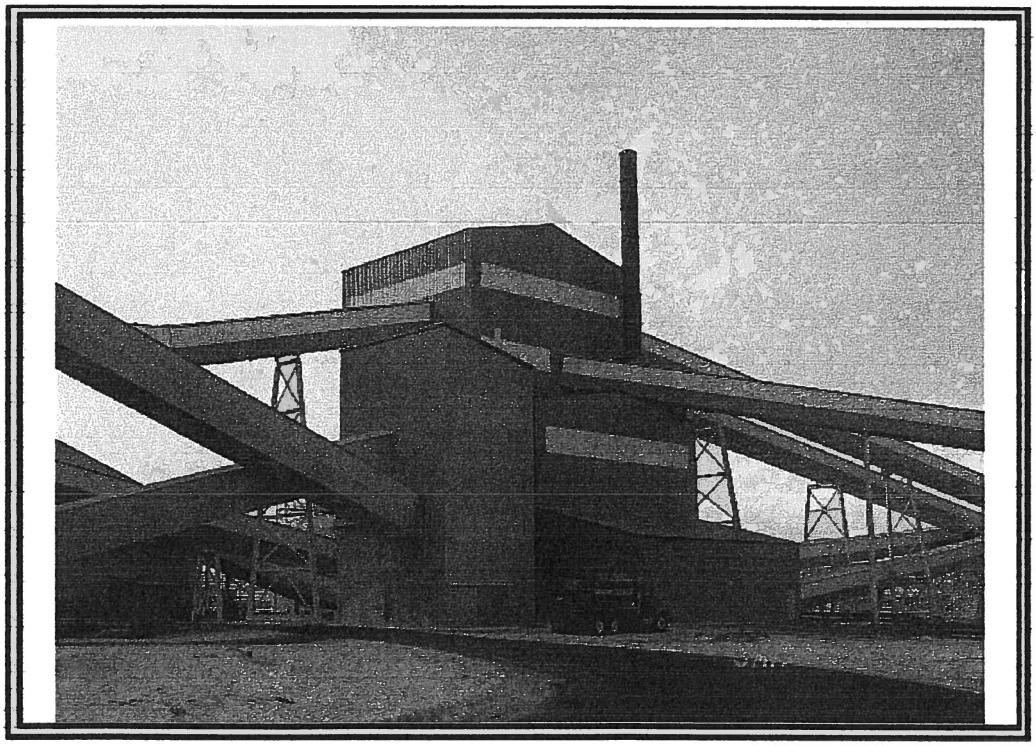
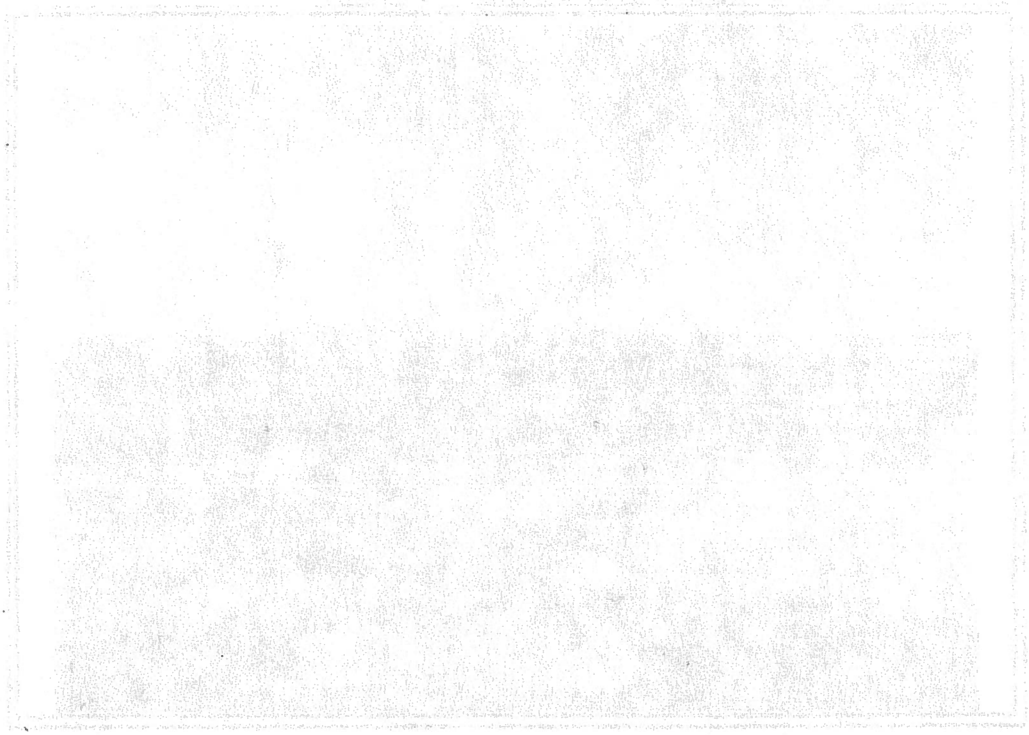
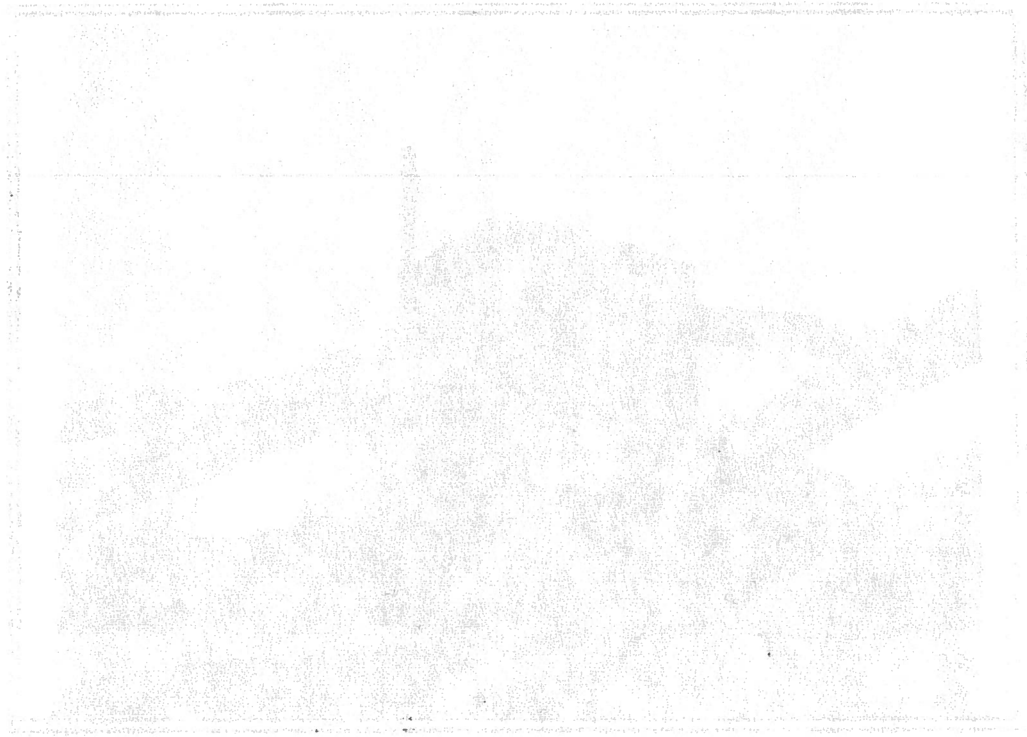
PHOTOGRAPHIC DOCUMENTATION
SOLVAY MINERALS
GREEN RIVER SODA ASH PLANT

PHOTOGRAPHER: Disel **DATE TAKEN:** 1/8/02 **PHOTO #:** 1
DESCRIPTION: Steam plumes observed at Solvay January 8, 2002.



PHOTOGRAPHER: Disel **DATE TAKEN:** 1/8/02 **PHOTO #:** 2
DESCRIPTION: The "D" Train Primary Ore Screening Baghouse AQD #76 stack.





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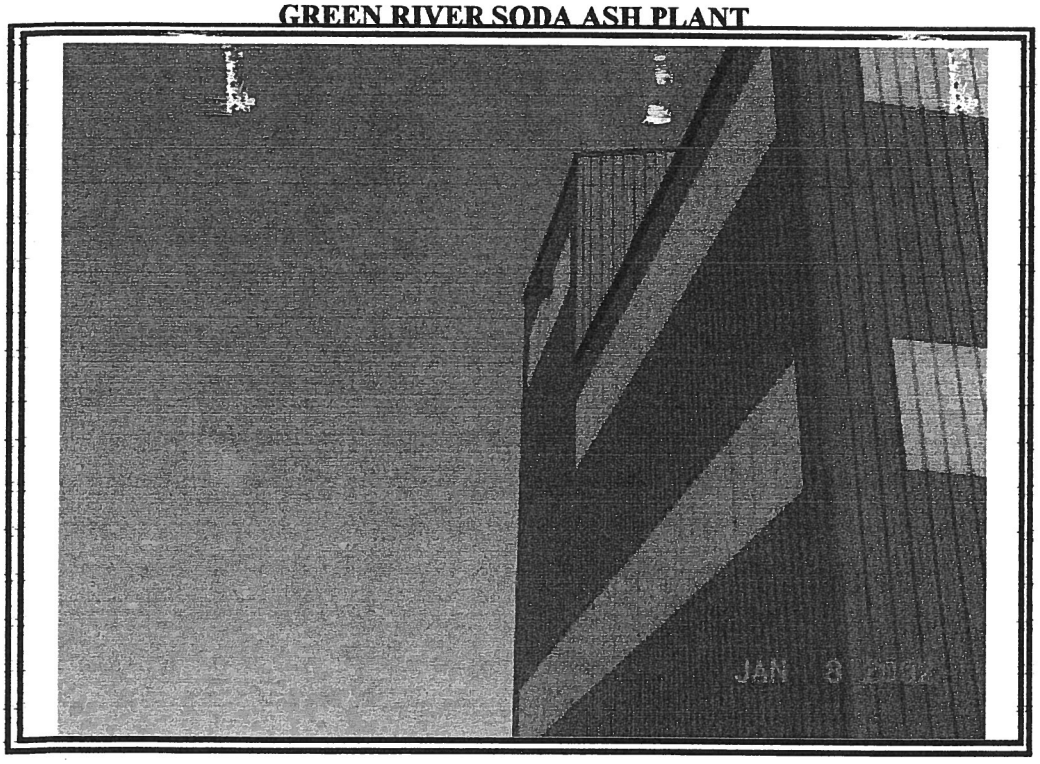
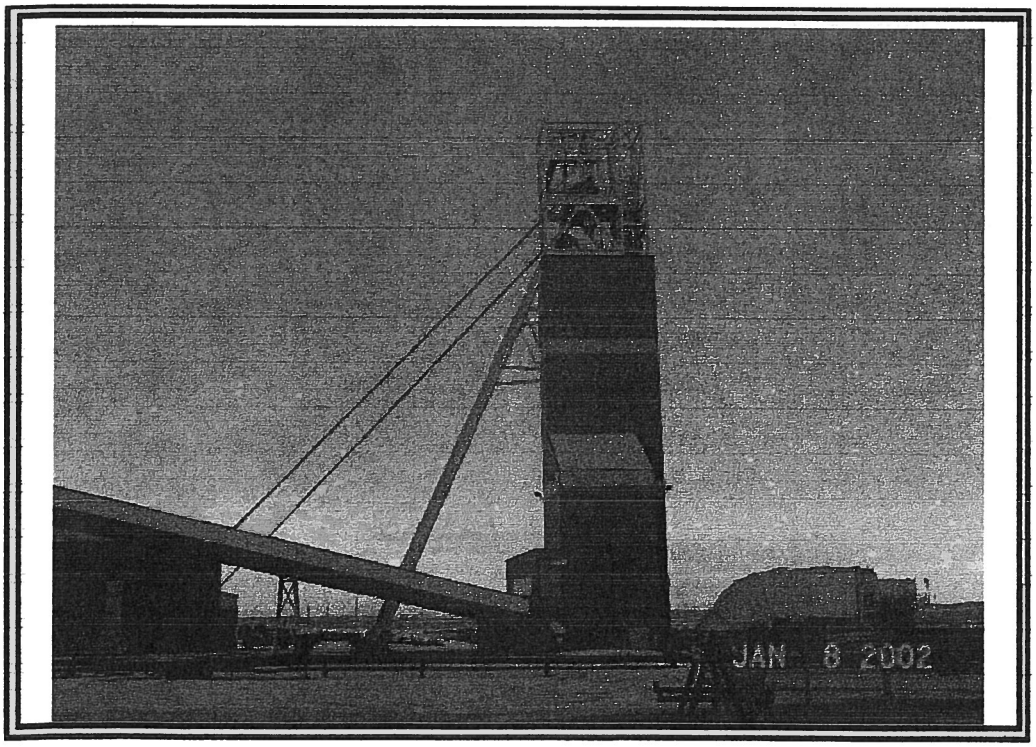


PHOTOGRAPHER: Disel **DATE TAKEN:** 1/8/02 **PHOTO #:** 3
DESCRIPTION: The Ore Transfer Point Baghouse AQD #79 stack.



PHOTOGRAPHER: Disel **DATE TAKEN:** 1/8/02 **PHOTO #:** 4
DESCRIPTION: New Head Frame.